

Berlin, Germany

predominantly cloudy

double skin facade, natural ventilation in a high rise building



The debris C1 building houses the HQ of “Daimler Benz Inter Services”. One of its architectural features is an interior atrium in the shape of a street, covered by a glass roof. The facade is composed of prefabricated terra-cotta elements and glass. The composition, however, varies from the lower parts of the building to the high rise building block. All offices are equipped with operable windows, but a mechanical system controls the ventilation as well.



The debris building is situated on the southern edge of the development at the Potsdamer Platz.



The second skin of the facade inevitably reduces daylight, even when designed for maximum transparency.



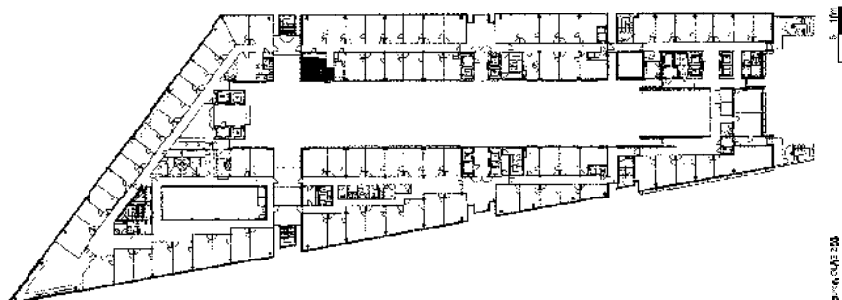
To provide natural ventilation within the offices in the high rise building part, the facade has two skins, in order to control wind pressures. The exterior skin is composed of movable glass lamellas. The design of this layer aims for transparency, inevitably reducing the amount of daylight reaching the offices. The space between the two skins is horizontally divided by maintenance balconies. Louver blinds for sun shading and glare control are situated in the space between the two skins. They are operated by the building energy management system with a manual override.



Left side: View of the debris C1 building from west. Right side: Interior view of the atrium. Glazed panels on the interior facades and on the roof are not designed to redirect daylight.



The described room is a cellular office with one workplace. There are two ceiling heights within the office. In the rear part it is lower incorporating technical installations, rising towards the window, to permit more penetration of daylight. The user cannot control possible glare caused by vertical strip windows on the sides of the room.



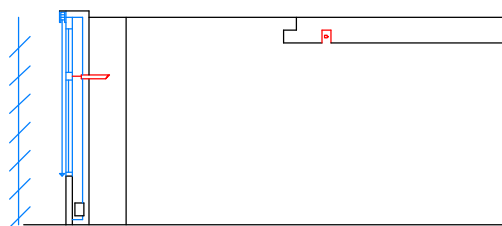
Floorplan of the third story of the debris-building. The room recorded is situated in one of the upper stories of the high rise building block.



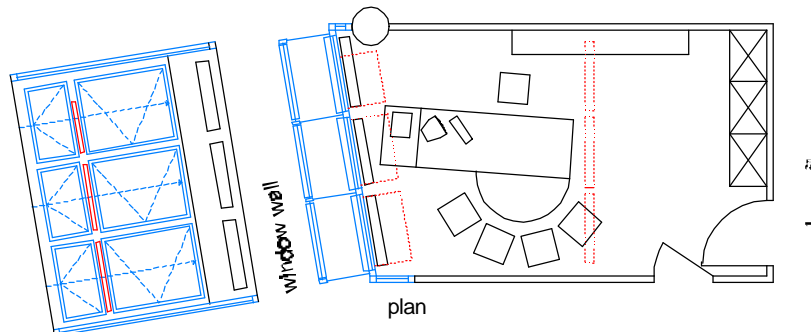
Interior view of typical office room.



Detail of double skin facade (left side). Window system with timber made louver blinds in the void between interior facade and exterior skin (right side)



cross-section



plan

building data

size	44 000 m ²
number of stories	21
architect	Renzo Piano
daylight consultant	Drees & Sommer
year of completion	1998

of office room

daylight strategy	unilateral, sidelighting
dimensions (depth/width/height)	6,3 m / 3,9 m / 2,9 m
room area	24,7 m ²
floor	carpet, 10%
wall	building board, 66%
ceiling	white paint, 70%
table	timber, 20%
chairs	black, 3%
west facing window	double low-e safety glass
doors	single pane glass
lamp types	compact fluorescent lamps
installed power density	5 W/m ²
control strategy	manual switching

facade		west facade	corridor facing floor
data	orientation	270°	90°
	glazed area	7,6 m ²	2,2 m ²
	opening index	0,66	0,19
function	daylighting	•	—
	view outside	•	—
	ventilation	•	—
	operable	•	•
	shading	•	—
	redirection	□	—
function systems		louver blinds	
function	sun shading	•	•
	glare protection	•	•
	redirection	—	—
location	inside	—	—
	window pane	•	•
	outside	—	—
	movable	•	•
	fixed	—	—